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## An Industry Perspective On Federal R&D Policy

*With economic rejuvenation the top priority of the Clinton Administration, industrial research and technology have eclipsed science on the agenda of Washington's sci-tech community. For an industrial perspective on the issues, SGR spoke on February 2 with Charles F. Larson, Executive Director of the Industrial Research Institute, a Washington-based association of 260 firms that perform about 85 percent of all industrial R&D in the US. Following is the text, transcribed and edited by SGR.*

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***SGR.*** *Industrial R&D stopped growing a few years ago. Any sign of a pickup?*

***Larson.*** Industrial R&D in the United States is still in a recession. It's been virtually flat for the past five or six years, and there's no sign that that's going to change much this year or perhaps next year. The level of industrial R&D spending this year has been forecast at around $83 billion, up only 2 percent from 1992. And that's hardly keeping pace with inflation. However, it is not the absolute level of R&D spending that is important. It is the commercialization of new technology. Industry is trying very hard to develop new lines of business, to develop new management techniques. Many companies are quite successful with this effort, others are just starting. Most are aware of the need to go in this direction, although some companies are finding that R&D is having to take a major cut to help get through this current period of low profits and slow growth.

*Science Policy in Limbo—P. 5*
*How They Pick University Heads—P.6*

***SGR.*** *Are foreign companies following this pattern of retrenchment in research when they run into financial difficulties?*

***Larson.*** Research is not exempt from cuts anywhere in the world. European R&D expenditures have been relatively flat, just as in the United States. Canadian R&D expenditures have been flat or negative. Japanese R&D expenditures in 1992 were up only a few percent, and that's a major change from previous years when they were raising their R&D budgets from 10 to 20 percent a year. The Japanese downturn in R&D spending last year was simply a result of their recession. Their R&D spending this year will be gaining ground, perhaps not as fast as it did in 1989, 1990, and 1991,

*(Continued on Page 3)*

## *Gloomy Reports Stir Defense Of SSC and Space Station*

The President's budget operatives floated rumors last week of hardship or even termination for the Space Station and the Superconducting Super Collider. But calls to arms by the defenders of the two mega-projects produced a quick backdown.

The beleaguered Mr. Clinton turned his attention to softer and safer budget-reduction targets, such as employes in the White House mail room and government limousines. Asked about reports that he planned to kill the SSC, Clinton replied, "That's not true." Meanwhile, the Administration's budgetminders said no decision had been made about the Space Station.

*(Continued on Page 2)*

## In Brief

**The National Space Council, traditionally a playpen for Vice Presidents, has been abolished as part of Clinton's design to trim the White House staff. Its Presidential advisory duties, never too weighty, have been transferred to the Office of Science and Technology Policy. The allegedly reduced staffing level for OSTP is 46—about the same as it was under Bush, though the Clinton team says additional functions will now reside in OSTP.**

*In another organizational shuffle, the Council on Environmental Quality, moribund for the past 12 years, has also been abolished. Taking its place is a newly established White House Office of Environmental Policy. Serving as Director: Katie McGinty, legislative assistant for energy and environmental issues for Al Gore in his Senatorial days.*

**Echoes of SGR's Feb. 1 report of rumors of a Senatorial candidacy for NIH Director Bernadine Healy: The *Columbus Dispatch* reported on Feb. 8 that "Some Ohio Republican leaders are talking up" Healy for the Senate in 1994. The *Dispatch* quoted State Republican Chairman Robert T. Bennett saying, "There are some people who think she'd be terrific. If she had an interest in it, she would certainly be an outstanding candidate." In response to inquiries, Healy says she hopes to remain at NIH—a matter not yet decided by the Clinton Administration—and has no plans beyond that.**

*One of the civilized world's last strongholds of one-candidate elections, the National Academy of Sciences, has chosen its next President—Bruce M. Alberts, Professor of Molecular Biology, UC Berkeley. He'll take office July 1, succeeding Frank Press, who plans to remain in Washington, DC, according to an announcement by the Academy.*

# . . . Mega-Projects Aim for the Point of No Return

*(Continued from Page 1)*

What's clear at this point is that through guile and clever planning, the costly pair have matured to the point where substantial interference with their budgets would entail a nasty political fight—not the number one quest of a President whose debut has been marked by amazing pratfalls.

Almost every state now has a piece of the projects through contracts and subcontracts for services and components. And though most of the spending is yet to come, the $8 billion spent so far on the Station and the nearly $2 billion on the SSC give plausibility to the argument that it's too late to turn back.

Both projects have soared far beyond the initial estimates given to Congress at their conception. And just last week, NASA reported that costs were out of control once again, this time in a software program that could run $500 million over budget. But that's barely noticeable in the context of a space project that started at $8 billion and is now budgeted for a total of $30 billion.

Of particular importance to the fate of the SSC is a special election in May in Texas, homestate of the big accelerator, to fill the Senate seat vacated when Lloyd Bentsen was appointed Secretary of the Treasury. Democrat Robert Krueger, a former Congressman serving on the Texas Railroad Commission, was named to the Senate by Governor Ann Richards, pending the May election. Retention of the seat by the Democrats would be jeopardized by scuttling of the SSC, which has brought thousands of construction and white-collar jobs to the Dallas area.

NASA has also seen to it that the Space Station is insulated by jobs and contracts. But it has gone beyond that and drawn in Europe, Canada, and Japan as collaborators who are building hardware, at their own expense, to be used in conjunction with the Space Station. When the House Appropriations Committee tried to kill the Space Station in 1991, supporters of the project staged a special Congressional hearing at which foreign space officials complained of a doublecross [SGR, June 15, 1991: "How They Salvaged the Space Station on Capitol Hill"].

Particularly telling was testimony by Jean-Marie Luton, Director of the European Space Agency, who accused the US of luring its foreign friends into costly space commitments and then abandoning joint plans "for purely internal convenience." Two days later the House voted to reverse the Appropriations Committee and restored funds for the Space Station.

While foreign entanglements have produced political benefits for the Space Station, their absence has handicapped the SSC, which is supposed to derive $1.7 billion of its projected $8.4 billion cost from foreign sources.

So far, nothing has been obtained from abroad but funny money—bargain-priced contracts for parts and materials that are calculated as "savings," which are then translated into "contributions." After repeatedly assuring Congress that the foreign money is on the way, Energy Secretary James Watkins left office last month acknowledging that it isn't so, and urged the US to put up all the money and get on with the SSC [SGR, February 1: "No Foreign Cash for SSC, Departing DOE Chief Says"].

Clinton's intentions toward the two mega-projects will be officially spelled out late in March, when the Administration sends Congress its revisions of the budget that Bush left behind for the fiscal year that begins next October 1. The President's Budget Director, Leon Panetta, is on record from his days in Congress as an ax-wielding opponent of the SSC and the Space Station. Panetta is obsessed by the deficit. Clinton must think of Congressional elections that are less than two years away. Their outcome could make or break his presidency.

## *SSC's Foreign Money Myth*

A report by the General Accounting Office spells out the chimerical nature of the foreign "contributions" that the Department of Energy claims for the Superconducting Super Collider. Under Congressional pressure to lighten the burden, DOE used to claim progress toward the goal of $1.7 billion as the foreign share of the total cost of $8.4 billion. As the Bush Administration departed, however, the groundless claim was muted in favor of all-American financing.

According to the GAO, of the $1.6 billion spent so far on the SSC, only about $15 million came from abroad. DOE's "projections" of foreign contributions include, for example, $85 million from impoverished Russia. That fantastical sum was computed on the basis of US costs minus the far lower costs in Russia, with the difference credited as a "contribution," though, in fact, the US would be shelling out $60 million in cash for Russia.

Similar fiscal tactics were employed in claiming funds from other nations.

**The GAO report, *Foreign Contributions to the Superconducting Super Collider* (GAO/RCED-93-75), is available without charge from: USGAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.**

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# . . . Cool Response to Proposals for Civilian DARPA

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but certainly more so than it did in 1992.

***SGR.*** *The Clinton campaign put a lot of emphasis on boosting industrial research. What would industrial research managers like to see government doing?*

***Larson.*** Industry is looking forward to incentives for investment in productive plant and equipment, for incentives to invest in new areas of R&D, particularly in biotechnology and information systems and electronics. One thing that we have been lacking is the availability of capital for startup businesses. Small businesses and startups have had to go to other countries, primarily Europe and Japan, for venture capital in recent years. The venture capital market in this country has virtually dried up from what it was six or seven years ago. It's still there, but the demands on that capital are far more than they were ever before. Some say it's not even venture capital anymore. In return for venture capital from abroad, foreign investors are receiving not only new technology, but access to our markets and technical expertise in this country. That's something that government can correct, and it can also create consortia of companies that would be a food chain for an end product such as an automobile or a machine tool or a computer. In other words, promote closer cooperation among suppliers and customers and the organizations that provide capital to make this happen. This can be done through changes in antitrust law, banking law, and tax law.

***SGR.*** *There are proposals to establish a civilian version of DARPA [Defense Advanced Research Projects Agency]. Would industry favor that?*

***Larson.*** I don't think anybody is particularly ecstatic over a civilian DARPA, although I do understand that DARPA itself has been highly beneficial to some industries. Whether we need another government organization to do essentially the same thing with a slightly different direction is questionable. The money for a civilian DARPA may not be there, as well. They're also talking about a Civilian Technology Corporation—the Harold Brown initiative [*The Government Role in Civilian Technology: Building a New Alliance*, a report produced last year by a National Academy of Sciences panel chaired by Harold Brown, former Secretary of Defense]. I don't think the funds are going to be there for that initiative.

***SGR.*** *Assuming money could be found, would a civilian DARPA, or Brown's proposal, or an expanded National Institute of Standards and Technology [NIST] be desirable from industry's point of view?*

***Larson.*** An expansion of NIST's Advanced Technology Program [which helps finance research by high-tech firms] would be desirable, but it's questionable whether a civilian DARPA could do much more than DARPA itself can do working with industry already. So, I question that we need another government organization to carry this out.

***SGR.*** *Is there much support in industry for the view that the national labs have a great potential for assisting civilian industry?*

***Larson.*** We issued a position paper last year to the Presidential candidates and suggested that the mission of the federal laboratories be reexamined and that perhaps some laboratories, in light of the current military situation, be closed. That probably will be done, but there's a very important factor that's involved here. And that is to include industry in the examination of the mission of the federal laboratories. The previous Administration, and I assume the new Administration will, too, indicated to the federal laboratories that they should be taking into account critical technologies that have been identified and the need for industry to be competitive in the global marketplace.

Now, most of these laboratories are making an effort to interact with industry. Most of them are producing newsletters and bulletins and other communications to let industry know what they're doing. But one of the problems they have had forever is that they don't know how to market what they have. Industry spends at least as much or more on marketing as it does on R&D. Federal laboratories have never had to market their end product. They market their plans and they sell those plans to agencies here in Washington to get funding. And once the project is funded, their job then is to make it happen.

***SGR.*** *The Reagan and Bush Administrations put a lot of emphasis on opening the federal labs to industry.*

***Larson.*** Technology transfer has been a very significant part of their activity in the past 10 years, particularly since the 1986 National Technology Transfer Act. Federal laboratory consortia and the National Technology Transfer Center are very useful sources of information in regard to what's going on in federal laboratories. Industry is taking advantage of those resources, although there's a great deal more that industry could do. Some companies, such as General Motors, are taking the lead on that. Cray Research, Intel, Hewlett-Packard, and other companies are also utilizing those resources. The federal laboratories can be very useful in environmental technology, for example, because it's a problem that not only government has to deal with, but industry as well. There are other examples, such as materials technology and information technology, where their expertise, which in many cases is very advanced and sophisticated, can be utilized by industry. In some cases, there has been a restriction on the transfer of that information because of it being classified. And that's something else the new Administration should examine. It's been a barrier for many years, which could be eliminated and help not only the federal labs but industry.

***SGR.*** *Despite much talk about closer relations between industry and universities, the share of academic R&D funds coming from industry has risen only slightly.*

***Larson.*** And I think it will rise only slightly in the next

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# . . . No Pickup Soon in R&D Hiring of New Graduates

*(Continued from Page 3)*

few years, because R&D budgets are extremely tight. In fact, they're going down at IBM and perhaps Kodak, and other major R&D spenders. That's not to say that industry is going to walk away from academic research. Industry depends a great deal on the information and expertise it obtains from university research. And it is dedicated to nurturing that resource. A recent PCAST report [*Renewing the Promise: Research-Intensive Universities and the Nation*, issued in December by the President's Council of Advisers on Science and Technology] indicated that universities will have to look forward to little or no increase in federal funding for research. I think the same can be said for funding from industry. Therefore, universities have to change in the way they manage their enterprise. They have to become efficient, and they have to focus on the primary reason for their existence, which is teaching as well as research.

***SGR.*** *Hiring of new graduates for R&D by industry has been pretty flat for some time.*

***Larson.*** And that's going to continue flat for the next couple of years. Industrial research has become more effective and efficient. It's finding that it can do with fewer technical support personnel. New instrumentation and equipment enables an R&D professional to do things by himself or herself that used to require a small team of people. The nature of the way industrial R&D is conducted has changed, and until corporate profits show strong and sustained growth, R&D budgets are going to remain somewhat flat.

***SGR.*** *In the meantime, corporate takeovers and the recession have reduced or altogether eliminated one of the great institutions of American industry, the central corporate laboratory.*

***Larson.*** Some corporations have done it, and they may regret it in the future. Largely companies that have restructured or been bought out by other companies—LBOs [leveraged buyouts]. Borg-Warner eliminated their corporate laboratory when they were subject to an LBO. When RCA was bought out by GE, the RCA corporate laboratory was redundant to GE, and GE donated it to SRI International, and it's now a contract research operation. Other companies, in the mid-80s, reduced the size of their laboratories, because of restructuring and debt.

Other companies, however, such as RJR Nabisco—and that was the largest LBO in history—have not reduced their R&D at all. In fact, they put more resources into R&D and it is paying off, so far as I can tell. They're not only in the tobacco business, but in the food business, and they're branching out into other businesses, just as Philip Morris and other tobacco companies are. They're looking ahead 20 years. Their strategic intent is long-range survival, and they've got to diversify in order to do that.

***SGR.*** *Some argue that the shrinkage in corporate labs adds to efficiency and is a beneficial change.*

***Larson.*** I personally think it's a serious mistake. We do not see Japanese companies going in that direction, and there's a very good reason for that: there needs to be a central focus for science and technology within the corporation, because all corporations are now technology-driven, whether their end products are high tech or not. Food companies are a good example of this. Their products are not high tech, but the way they manufacture those products and grow them involves the most sophisticated and latest technology. Corporations need a technology leader, and that technology leader needs to have strong interaction with top management.

Boards of directors in this country are realizing that, but they're not moving very fast about it. There was a recent study that indicated that about 85 percent of European corporations have the technical function represented on their boards of directors. That is, a member of the corporation involved with technology would be a member of the board or at least a key member of the strategic planning team which is developing long-range goals for the corporation and assessing acquisitions and divestitures. Over 50 percent of Japanese corporations have the technical function represented, but only a little over 20 percent of American corporations have the technical function represented on their board. That has to change, because technology is the driver and top management has to understand and appreciate and nurture technology within the corporation.

***SGR.*** *Isn't it late in the game for American corporations to be making this omission in selecting the board?*

***Larson.*** Many of the CEOs and other members of the board have backgrounds in finance, marketing, and law. They understand and appreciate the need for technology,but they haven't been particularly interested in nurturing that function and making it a key part of the decisionmaking process within the company.

## *Job Changes & Appointments*

***Lyle W. Bivens*** has been named Director of the Office of Research Integrity, which oversees scientific misconduct inquiries and investigations in the agencies of the Public Health Service. Bivens had been heading the Office on an acting basis. ***Tom Morford***, formerly with the Health Care Financing Administration, will become ORI Deputy Director, and ***Lawrence Rhoades*** will become Acting Director of the ORI Division of Policy and Education.

Mum's the word until high authority speaks, but ***Mike Nelson***, a member of the staff of the Senate Subcommittee on Science, Space, and Technology, has lately been seen on the premises of the White House Office of Science and Technology Policy—due for a job appointment there, SGR hears. The Subcommittee chairmanship has passed from ex-Senator Al Gore to Jay Rockefeller (D-W.Va.)

And there are rumors but no confirmation that ***John Deutch*** of MIT is bound for a high post at the Pentagon.

# Clinton and Science Support: There's Still a Big Blank

Until the Clinton Administration completes its surprisingly prolonged process of staffing and organizing, there's no way of assessing its intentions in scientific matters. But the opening days of the new Presidency have not brought propitious signs for the care and feeding of the scientific enterprise.

Candidate Clinton spoke often of technology in the context of improving productivity, but said virtually nothing about science. His choice for Presidential Science Adviser, John Gibbons, head of the Congressional Office of Technology Assessment, stressed the interdependence of science and technology when Clinton announced his appointment.

However, Gibbons made his mark in Washington as an interpreter of science, not as an advocate, which has been the traditional role of Presidential Science Advisers. He may well step out as the new champion of basic research, but so far there's nothing to indicate that the Administration he serves has much interest in that area. The economic potential of technology persists as the dominant theme in the new Administration's thinking on sci-tech issues.

It is generally assumed that the Clinton-Gibbons White House science advisory operation will include an outside committee of wise men and women—called, under Bush, the President's Council of Advisors for Science and Technology. Traditionally, that group has agitated in behalf of scientific interests. But, so far, the White House has not revealed its organizational intentions.

While Clinton and company are setting their course, the National Science Foundation, the centerpiece of federal support for basic research outside the health sciences, is adrift. Just as the budget is being reshaped for the current fiscal year and planned for the following year, Director Walter Massey has announced he's leaving in April for the top Vice Presidency at the University of California. Lame duck status will not enhance his influence within the Administration or on Capitol Hill, where there's serious pressure for NSF to do something quick and visible for the economy.

At the National Institutes of Health, which experienced a rare budget setback in the last Congress, there's no doubt that Bernadine Healy remains in charge and is determined to keep it that way. An announcement might be forthcoming any day about whether she stays or leaves. But Healy's welcome on Capitol Hill has been slipping.

Though she has extended the olive branch to the formidable John Dingell, Chairman of the House committee that writes the laws for NIH, Dingell is dedicated to her departure from NIH, and has urged Clinton to fire her. Some Members remain miffed about Healy's support for the Reagan-Bush restrictions on fetal-tissue research, and don't buy her argument that, though personally opposed to the restrictions, she was bound to support her government's policy.

Healy retains many admirers on Capitol Hill, and press and TV continue to dote on her, as happened again recently in a fawning piece about her on ABC's *Prime Time*. But her difficult relationship with Dingell and reports of her ambitions for political office set Healy out as very different from Washington's expectations in senior science administrators.

The National Academy of Sciences showed its political mettle in behalf of science back in 1981 when Reagan took office and decreed big cuts in research spending. The Academy rallied the troops, publicly challenged Reagan's newly appointed Science Adviser, George Keyworth III, to defend the cuts, and helped limit the carnage, even if it didn't prevent some damage.

But in recent years, the Academy has drifted away from direct involvement in science politics. And it, too, is headed by a lame duck, Frank Press, who leaves office at the end of June.

Where is there a bastion of power to speak for science? The best candidate at the moment is a little-visible entity on Capitol Hill, the Subcommittee on Science of the House Science, Space, and Technology Committee, chaired by Rep. Rick Boucher (D-Va.).

Boucher, who is planning a series of hearings on national science policy, has just announced formation of an Advisory Group on Renewing US Science Policy, a 34-member body that includes many of the barons of the science establishment, plus other influential figures.

Among the members: David Hamburg, President of the Carnegie Corporation; Theodore Cooper, CEO of Upjohn; Richard Atkinson, Chancellor, UC San Diego; Robert Frosch, GM Vice President for Research Laboratories; David Nagel, a Vice President of Apple Computer; Richard Nicholson, Executive Officer, AAAS; Lewis Branscomb, Director of the Science, Technology, and Public Policy Program, Kennedy School, Harvard; Linda Wilson, President of Radcliffe College; Edward E. David Jr., who served as Nixon's Science Advisor, and Academy President Frank Press.

Advisory committees to Congressional subcommittees are rarities and there's little experience with their potential. It would seem, however, that the placement is far too low in the Washington hierarchy for shaking up things in any decisive way—assuming the membership of 34 could agree on a desirable course.

Nonetheless, on the barren landscape of science politics these days, there's little besides Boucher's optimistically titled Advisory Group on Renewing US Science Policy.—DSG

## *Meeting Set on German R&D*

The National Academy of Sciences and the German Embassy in Washington will co-sponsor an all-day meeting on May 26 at the Academy on "Germany's New States: Collaborative Opportunities for American Science and Industry." Participants will include senior German and American research officials. For information, call the Embassy: 202/298-4366 or 298-4333.

# In Seeking Presidents, Academe Prefers Distance

With search committees of eminent membership and long and short lists of possible candidates, universities perform elaborate sifting exercises in hiring their presidents. But a look at recent academic recruitments suggests that, as with mail order brides, distance adds allure.

The most winning characteristic in today's academic presidential sweepstakes appears to be an absence of prior connections with the hiring institutions, many of them so internally embattled that any lively local candidate inevitably spawns hostile coalitions. Signifying how times have changed, the newcomers from afar usually succeed presidents who had been around for a long time before ascending to the top spot on campus.

Columbia University, riven with strife over red-ink budgets, has just recruited the President of Houston's Rice University, George E. Rupp, for its next President. In a distinguished career that began with an undergraduate degree from Princeton, Rupp studied and served at Yale, Harvard, the University of Wisconsin, and the University of Redlands, in California. Absent from his resume is Columbia, alma mater of the departing President, Michael Sovern, who was an undergraduate, law student, law professor and administrator there for 30 years before becoming President in 1980.

Stanford University, walloped and embarrassed by federal auditors for misuse of government research funds, has also recruited from afar, hiring the Provost of the University of Chicago, Gerhard Casper, to succeed President Donald Kennedy. Casper, a Yale graduate, had been at Chicago since he joined the law faculty there in 1966. Kennedy, a Harvard graduate, had been at Stanford for 20 years when he was named President of the university in 1980.

Chicago, in the market for a President to succeed the retiring Hanna H. Gray, has hired the Provost of Princeton University, Hugo Sonnenschein, an economist who has taught in many places since he received a PhD from Purdue University in 1964—Chicago not among them.

The next President of Duke University will be Nannerl O. Keohane, currently the President of her undergraduate alma mater, Wellesley College. Keohane also studied at Yale and Oxford and taught at Swarthmore, the University of Pennsylvania, and Stanford University. Her academic itinerary did not include Duke, which is currently headed by H. Keith Brodie, a psychiatrist who joined the Duke faculty in 1974 and was appointed President in 1985.

The Harvard Presidency, most august in the academic world, has traditionally been filled from inside the university. But not so the last time around. When the vacancy loomed two years ago, the job went to a Harvard PhD and former junior faculty member, Neil L. Rudenstine, who had left Harvard in 1968 for Princeton, where he spent 20 years as an administrator. When Harvard beckoned, Rudenstine was an executive at the Andrew Mellon Foundation. His predecessor at Harvard, Derek Bok, joined the law faculty there in 1958 and was Dean of the Harvard Law School when he was named President in 1971.

MIT's current president, Charles M. Vest, received his master's and doctoral degrees at the University of Michigan, where he later rose to Dean of Engineering and Provost. His predecessor at the helm of MIT, Paul E. Gray, is a fullscale son of that institution, starting with an MIT undergraduate degree in 1954 and continuing through teaching and administrative posts right to the top of the MIT hierarchy.

The University of California, the biggest public university system in the country, surely has ample homegrown talent in its ranks. Nevertheless, to fill its number two spot, California has recruited Walter Massey, now Director of the National Science Foundation, formerly a Vice President of the University of Chicago. The post Massey is bound for is considered a direct stepping stone to the Presidency of California's statewide university system.

Serenity long ago departed the groves of academe, expelled by rancorous professors and administrators squabbling over shrinking budgets, crimped professional opportunities, and ideological shadings. To this melange must be added the grisly tasks of dealing with unruly students, vexing government auditors, and parents irate over soaring tuition. Given this atmosphere, no one who has risen to eminence on campus could possibly survive the presidential search process.

As a result, in a turnabout from ancient principle, the governing rule in academic presidencies seems to be that the devil you don't know is preferable to a familiar face on campus.—DSG

## *Clinton Urged to Fire NCI Head*

Professor Samuel Epstein, persistent critic of the cancer establishment, has rounded up some 60 signatories of various relevance and distinction for a letter urging President Clinton to fire Samuel Broder, Director of the National Cancer Institute since 1989.

Epstein, Professor of Occupational and Environmental Medicine at the University of Illinois at Chicago School of Public Health, has long argued that the so-called war on cancer is a failure—a viewpoint that has more adherents than NCI cares to admit. In Epstein's view, the biggest flaw is a concentration on a curative strategy to the neglect, as he sees it, of preventive methods. For 20 years, Epstein has been unflagging in arguing that case, and last May, the National Cancer Advisory Board finally gave him a hearing at what turned out to be a tumultuous session [SGR, May 15: "Severest Critic Gets a Hearing on the War on Cancer"].

In the letter to Clinton, Epstein and company assert that "Broder has trivialized the critical role of environmental and occupational causes of cancer," and contend that NCI has exaggerated progress in research and the effectiveness of cancer treatments.

# More IN PRINT: Women's Grants, Brain Studies, Etc.

*(Continued from Page 8)*

***Grants at a Glance: A Directory of Financial Resources for Women in Science***, from the Association for Women in Science (115 pp., $4.50 for members, $6 for others, plus $1.50 for postage), lists some 400 government and private programs of grants, fellowships and other awards either exclusively for women or non-sexed, with eligibility ranging from high school to mid-career. All fields of science, engineering, and health care are covered, plus history of science, precollege science education, science journalism, and science policy. Entries include eligibility requirements, size of awards, deadlines, etc. The Association, headquartered in Washington, reports nearly 4000 members in 50 chapters throughout the country. Preparation of the directory was assisted by the Alfred P. Sloan Foundation.

**Order from: Association for Women in Science, 1522 K St. NW, Suite 820, Washington, DC 20005; tel. 202/408-0742; fax 202/408-8321.**

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***Progress and Promise 1992: Status Report, Decade of the Brain*** (50 pp., no charge), from the Advisory Council of the NIH National Institute of Neurological Disorders and Stroke (NINDS), a colorful brochure in support of sagging efforts to develop a neurological counterpart of the war on cancer. Though Congress and President Bush declared the 1990s the Decade of the Brain, the pitch has failed to invigorate the NINDS budget beyond normal growth, nor has it developed the political constituencies that sent the cancer budget soaring in the early days of that enterprise. The difference is that times are tough, the public and politics are warier of promises of biomedical miracles, and the chief Congressional champion of the Decade of the Brain, Rep. Silvio O. Conte, died in 1991, and has not been replaced in that role. In addition, NIH Director Healy has focused her enthusiasm on women's health issues and development of an NIH strategic plan—still in limbo.

**Order from: National Institute of Neurological Disorders and Stroke, PO Box 5801, Bethesda, Md. 20824; tel. 301/496-5751.**

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***1993 Directory of Physics Research: A Guide for Reporters*** (132 pp., no charge), from the American Institute of Physics, a collection of press releases and similar material at a popular level describing physics research programs at university and industrial labs and other research centers. Useful for seeing how the other guys toot their PR horns.

**Order from: Public Information Division, American Institute of Physics, 335 East 45th St., New York, NY 10017; tel. 212/661-9404.**

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***Arms Control: US and International Efforts to Ban Biological Weapons*** (GAO/NSIAD-93-113; 67 pp., no charge), from the General Accounting Office, a report commissioned by Al Gore while he was a Senator, questions the effectiveness of the international Convention against biological weapons (BW), noting that when it was opened for signatures in 1972, four nations were suspected of BW developments, while "presently, there are at least 10 such countries, some of which are members of the Convention."

The report states that export controls are generally ineffective because of the availability of many BW materials and technologies in normal commerce. The GAO notes that the US has traditionally been opposed to on-site verification because of concerns about proprietary information and fears of a false sense of security. But it also suggests that verification may become more acceptable through experience with a US-Russian-UK agreement on inspection of BW facilities.

**Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.**

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***American Medical Education: Institutions, Programs, and Issues*** (36 pp., no charge), from the Association of American Medical Colleges, a brief review of medical school finance, enrollments, research support, etc.

**Order from: AAMC, Membership and Publications Orders, 2450 N St. NW, Washington, DC 20037-1126; tel. 202/828-0416.**

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***New Drug Approvals in 1992*** (12 pp., no charge), from the Pharmaceutical Manufacturers Association (PMA), Washington lobby for the research-intensive pharmaceutical firms, a list of the 26 drugs approved by the FDA last year, plus reports on other FDA actions, and figures on PMA members' aggregate R&D spending over the past decade.

**Order from: Pharmaceutical Manufacturers Association, Communications Division, 1100 15th St. NW, Washington, DC 20005; tel. 202/835-3469.**


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# IN PRINT: Science Policy, Defense Cuts, Risk Studies

*The publications listed are obtainable as indicated—not from SGR.*

***Renewing US Science Policy: Private Sector Views*** (No. 168; 109 pp., no charge), text of testimony last September from the first, and so far the only, hearing in what has been billed as a long-running inquiry into science policy by the Science Subcommittee of the House Science, Space, and Technology Committee. Conducted in an end-of-session, election-year rush, the hearing hurried through seven witnesses in two hours and 15 minutes. Among those testifying were: Theodore Cooper, Upjohn CEO; Arden Bement Jr., TRW Vice President for Science and Technology; Alan G. Chynoweth, Bellcore Vice President for Applied Research, and David C. Nagel, Apple Computer Senior Vice President for Advanced Technology. Rep. Rick Boucher (D-Va.) chairs the Subcommittee. More hearings are said to be planned, probably starting in March, but at this point it all sounds a bit vague.

**Order from: Publications Office, House Committee on Science, Space, and Technology, 108 Ford HOB, 3d and D Sts. SW, Washington, DC 20515; tel. 202/225-5030.**

***Military Cutbacks and the Expanding Role of Education*** (212 pp., no charge), from the US Department of Education, Office of Research, 10 papers commissioned for a conference held in May 1991. The general topics: "Military Cutbacks and Their Implications for Non-College Bound Youth," "Educational Resources Available to Individuals Making a Transition from the Military to the Civilian Sector," "The Role of Educational Policy at the Workplace," and "Effects of Cutbacks on Postsecondary Institutions and the US Workforce."

**Order from: US Department of Education, Office of Research, 555 New Jersey Ave. NW, Washington, DC 20208; attn. Nevzer Stacey; tel. 202/219-2111.**

***The Social Impact of AIDS in the United States*** (336 pp., $34.95, plus $4 shipping for one copy, 50 cents each for more), from the National Academy of Sciences, a report concluding that AIDS "has had little effect on American society as a whole or its way of doing business"—in the words of Albert R. Jonsen, University of Washington Professor of Ethics in Medicine, who chaired preparation of the report. Quoted in an accompanying press release, Jonsen observes that AIDS "is now burrowing into socially disadvantaged segments of our society that may be ignored by the general population and by public policy." The Jonsen panel reported finding little impact from AIDS on health care, public health programs, correctional systems, voluntary and community-based organizations, or religious groups. The disease, it said, is concentrated in poor and minority communities. The most decisive institutional effects, it reported, have been on clinical research and drug regulation, especially in speedier review and approval of drugs.

Also from the Academy: ***Issues in Risk Assessment*** (356 pp., $37.50, plus $4 shipping for one copy, 50 cents each for more), a rare event in Academy operations—a split decision in public, on the politically volatile issue of whether caution or supercaution should prevail in animal testing for human carcinogens. The divisive issue was whether the principle of the maximum tolerated dose (MTD) should be retained in carcinogenicity bioassays. Citing more sophisticated testing techniques, six of 17 committee members voted to "redefine the MTD, basing it on studies of the dose dependence of physiologic effects expected to alter carcinogenic response." The majority, however, voted to retain the traditional MTD as one of the doses used in assays. The report was prepared by the Academy's Committee on Risk Assessment Methodology, chaired by Bernard D. Goldstein, Director of the Environmental and Occupational Health Sciences Institute, Robert Wood Johnson Medical School, University of Medicine and Dentistry, New Jersey.

**Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1/800-624-6242; in the Washington, DC area: 202/334-3313.**

***Effective Use of Global Technical Resources*** (365 pp., $40), proceedings of a conference in Italy last June, cosponsored by the Rensselaer Polytechnic Institute's Center for Science and Technology Policy and the Joint Research Center of the European Community's Directorate for Science, Research and Development, with assistance from NSF, UN organizations, Japan's MITI, and others. Participants were from government agencies, academe, and industry. Among the titles of papers presented: "Japan's Industrial Technology Policy," "The Globalization of Technology in the Chemistry Industry," "Scientific, Technological and Industrial Cooperations of Arab Countries with the OECD Countries," and "The Resources in Science and Technology in Poland." Herbert Fusfeld of the Rensselaer Center edited the volume.

**Order from: Center for Science and Technology Policy, Lally School of Management, Rensselaer Polytechnic Institute, Troy, New York, 12180-3590; tel. 518/276-6836; fax 518/276-8661.**

***Economics of Solar Energy Technologies***, from the American Solar Energy Society (48 pp., $15 for members, $20 for others, plus $1 for postage), an upbeat report on solar and other renewables, concluding that "a wide variety of renewable energy applications are presently cost competitive with conventional energy technologies and many more will be competitive soon." Funding for the report was provided by the Department of Energy's National Renewable Energy Laboratory and members of the Society.

**Order from: American Solar Energy Society, 2400 Central Ave. G-1, Boulder, Colorado 80301; tel. 303/443-3130; fax 303/443-3212.**

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